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HEWLETT-PACKARD COMPANY  
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EXAMINER
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EHICHIOYA, FRED I

ART UNIT	PAPER NUMBER
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2162

DATE MAILED: 05/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/687,301

Applicant(s)

PERRY, RUSSELL

Examiner

Fred I. Ehichioya

Art Unit

2162

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 - 22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 - 22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413)          |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>10/15/2003</u> .  | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Priority***

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been recorded.

### ***Information Disclosure Statement***

2. The information disclosure statement (IDS) submitted on 10/15/2003 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement has been considered by the examiner.

### ***Specification Objection***

3. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

### **Arrangement of the Specification**

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.

(d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT

(e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A

COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or

REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a).

"Microfiche Appendices" were accepted by the Office until March 1, 2001.)

(f) BACKGROUND OF THE INVENTION.

(1) Field of the Invention.

(2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.

(g) BRIEF SUMMARY OF THE INVENTION.

(h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).

(i) DETAILED DESCRIPTION OF THE INVENTION.

(j) CLAIM OR CLAIMS (commencing on a separate sheet).

(k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

(l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A

"Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

### **Content of Specification**

- (a) Title of the Invention: See 37 CFR 1.72(a) and MPEP § 606. The title of the invention should be placed at the top of the first page of the specification unless the title is provided in an application data sheet. The title of the invention should be brief but technically accurate and descriptive, preferably from two to seven words may not contain more than 500 characters.
- (b) Cross-References to Related Applications: See 37 CFR 1.78 and MPEP § 201.11.
- (c) Statement Regarding Federally Sponsored Research and Development:  
See MPEP § 310.
- (d) The Names Of The Parties To A Joint Research Agreement: See 37 CFR 1.71(g).
- (e) Incorporation-By-Reference Of Material Submitted On a Compact Disc:  
The specification is required to include an incorporation-by-reference of electronic documents that are to become part of the permanent United States Patent and Trademark Office records in the file of a patent application. See 37 CFR 1.52(e) and MPEP § 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text were permitted as electronic documents on compact discs beginning on September 8, 2000.

Or alternatively, Reference to a "Microfiche Appendix": See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.

- (f) Background of the Invention: See MPEP § 608.01(c). The specification should set forth the Background of the Invention in two parts:
- (1) Field of the Invention: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions of the subject matter of the claimed invention. This item may also be titled "Technical Field."
  - (2) Description of the Related Art including information disclosed under 37 CFR 1.97 and 37 CFR 1.98: A description of the related art known to the applicant and including, if applicable, references to specific related art and problems involved in the prior art which are solved by the applicant's invention. This item may also be titled "Background Art."
- (g) Brief Summary of the Invention: See MPEP § 608.01(d). A brief summary or general statement of the invention as set forth in 37 CFR 1.73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the

Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.

- (h) Brief Description of the Several Views of the Drawing(s): See MPEP § 608.01(f). A reference to and brief description of the drawing(s) as set forth in 37 CFR 1.74.
- (i) Detailed Description of the Invention: See MPEP § 608.01(g). A description of the preferred embodiment(s) of the invention as required in 37 CFR 1.71. The description should be as short and specific as is necessary to describe the invention adequately and accurately. Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field of the invention described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly complicated subject matter is involved or where the elements, compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.

- (j) Claim or Claims: See 37 CFR 1.75 and MPEP § 608.01(m). The claim or claims must commence on separate sheet or electronic page (37 CFR 1.52(b)(3)). Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation. There may be plural indentations to further segregate subcombinations or related steps. See 37 CFR 1.75 and MPEP § 608.01(i)-(p).
- (k) Abstract of the Disclosure: See MPEP § 608.01(f). A brief narrative of the disclosure as a whole in a single paragraph of 150 words or less commencing on a separate sheet following the claims. In an international application which has entered the national stage (37 CFR 1.491(b)), the applicant need not submit an abstract commencing on a separate sheet if an abstract was published with the international application under PCT Article 21. The abstract that appears on the cover page of the pamphlet published by the International Bureau (IB) of the World Intellectual Property Organization (WIPO) is the abstract that will be used by the USPTO. See MPEP § 1893.03(e).
- (l) Sequence Listing. See 37 CFR 1.821-1.825 and MPEP §§ 2421-2431. The requirement for a sequence listing applies to all sequences disclosed in a given application, whether the sequences are claimed or not. See MPEP § 2421.02.



### ***Claim Objections***

4. Claims 4, 6, 7, 8 and 9 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.
5. Claim 12 is objected to because of the following informalities: preamble is missing in the claim. ***A claim preamble has the import that the claim as a whole suggests for it." Bell Communications Research, Inc. v. Vitalink Communications Corp., 55 F.3d 615, 620, 34 USPQ2d 1816, 1820 (Fed. Cir. 1995). "If the claim preamble, when read in the context of the entire claim, recites limitations of the claim, or, if the claim preamble is necessary to give life, meaning, and vitality' to the claim, then the claim preamble should be construed as if in the balance of the claim." Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165-66 (Fed. Cir. 1999).*** Appropriate correction is required.

### ***Claim Rejections - 35 USC § 101***

6. 35 U.S.C. § 101 reads as follows:
- Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.
7. Claims 1, 12, and 19 - 22 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter, specifically towards abstract ideas.

Claims 1, 12, and 19 - 22 in view of **MPEP section 2106 IV.B.2. (b)** define a non-statutory process because they merely manipulate an abstract idea without a claimed limitation to a practical application. The language of the claim raises a question as to whether the claims are directed merely to abstract idea that is not tied to a technological art, environment or machine which would result in a practical application producing a concrete, useful, and tangible result to form the basis of statutory subject matter under 35 U. S. C. 101. The invention, as claimed, is directed to the manipulation of an abstract idea with no practical application in the technology art. Thus, the claims are rejected as being non-statutory.

Claims 1, 20 and 21 represents an abstract idea that cannot be placed into one of the four statutory category of an invention. There is no manipulation of data nor there is any transformation of data from one state to another state being performed in "storing a hierarchical document in a relational database". Storing a hierarchical document in a relational database is not a physical transformation.

Claim 12 represents an abstract idea that cannot be placed into one of the four statutory category of an invention. There is no manipulation of data nor there is any transformation of data from one state to another state being performed in "a relational database comprising a table having an node field for storing an node of a hierarchical document". Actually, no post-computer process activity is found in the claims. "A relational database comprising a table having an node field for storing an node of a hierarchical document " is not a physical transformation.

Claims 19 and 22 represents an abstract idea that cannot be placed into one of the four statutory category of an invention. There is no manipulation of data nor there is any transformation of data from one state to another state being performed in "writing a hierarchical document". "Writing a hierarchical document" is not a physical transformation.

Thus, no physical transformation is performed, no practical application is found in the claims. Also, the claims do not appear to correspond to a specific machine or manufacture disclosed within the specification and thus encompasses any product of the class configured in any manner to perform the underlying process. Claims 1, 12, and 19 - 22 are not **tangibly embodied** in a manner so as to be executable as the only hardware is in an intended use statement. Therefore, claims 1, 12, and 19 - 22 are directed to abstract idea that do not impart any specific functionality on a general purpose computer, which would result in a practical application producing a concrete, useful, and tangible result to form the basis of statutory subject matter under 35 U. S. C. 101. Applicant (s) is/are advised to amend the claims by specifying the claims being directed to a practical application and producing a tangible result being executable by a general purpose computer in order to correct the indicated deficiencies.

To expedite a complete examination of the instant application the claims rejected under 35 U.S.C. § 101 (nonstatutory) above are further rejected as set forth below in anticipation of applicant amending these claims to place them within the four statutory categories of invention.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

9. Claims 1 – 22 are rejected under 35 U.S.C. 102(a) as being anticipated by NPL “Storing and querying ordered XML using a relational database system” by Igor Tatarinov et al (hereinafter “Tatarinov”).

Regarding claims 1 and 20, Tatarinov discloses a method of storing a hierarchical document in a relational database (page 204 – Title and Abstract: “store and query XML documents using relational database”; “An XML document can be viewed as a tree/hierarchy” – page 205, section 3.1, paragraph 1) comprising

(a) parsing a hierarchical document (page 214, section 7.8, paragraph 1 : XML document has to be parsed”),

(b) associating a unique identifier with respective parsed nodes of the document (page 206, section 3.3: “the node in an XML document are assumed to have unique identifiers (IDs)”) which includes information about the hierarchical position of the node in the document (page 206 section 4.1: “each node is assigned a number that represents the node’s absolute position in the document”),

(c) storing the node with its identifier in a table of a relational database (page 207 section 5.1: "the Edge table is used to store an entire document. . . Each Edge tuple represents a node in the XML document tree").

Regarding claim 2, Tatarinov discloses wherein the identifiers are associated such that a predetermined ordering of the identifiers and associated nodes in the database produces a predetermined ordering of nodes (page 206 section 3.3: "Accordingly, the result of evaluating an XPath expression is an ordered set of node IDs").

Regarding claim 3, Tatarinov discloses wherein the predetermined ordering of the nodes is that produced by a depth first traversal of a tree representation of the hierarchical document (page 207 section 4.3: "each node is assigned a vector that represents the path from the document's root to the node. Each component of the path represents the local order of an ancestor node, as illustrated in Figure 1").

Regarding claim 4, Tatarinov discloses wherein the identifier includes a separate character position for each hierarchical level in the document which is traversed to reach the associated node in the hierarchical document (page 208 section 5.1.1: "*Local Order*: Since the relative position of a node among its siblings does not uniquely identify a node in a document, unique node IDs still need to be assigned (that do not have to follow document order). A new column needs to be added to represent

the position of a node among its siblings (the sibling index of a node, sIndex): Edge(id, parent\_id, sIndex, path\_id, value)".

Regarding claim 5, Tatarinov discloses wherein a unique prefix character is used each time the number of nodes in a particular hierarchical level exceeds the unique characters in the identifier alphabet (page 211 section 6.2.2).

Regarding claims 6 and 13, Tatarinov discloses wherein at least one database table entry includes a document identifier which identifies the hierarchical document from which an node has been parsed (page 207 section 5.1, paragraph 2: "Each Edge tuple represents a node in the XML document tree. The id column corresponds to the node's ID and also serves as the primary key of the relation").

Regarding claim 7, Tatarinov discloses a wherein at least one database table entry includes a value field which records a value of the node in the table entry (page 207 section 5.1, paragraph 2, "value column is for text values of text nodes").

Regarding claims 8 and 15, Tatarinov discloses wherein at least one database table entry includes a type field which indicates a characteristic type of the node in the table entry from a predetermined set of types (page 207 section 5.1: "A single relation, the Edge table is used to store an entire document. . . .Each Edge tuple represents a

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node in the XML document tree. The id column corresponds to the node's ID and also serves as the primary key of the relation").

Regarding claim 9, Tatarinov discloses wherein the hierarchical document is an XML document (page 206 section 3.1, paragraph 1: "An XML document can be viewed as a tree/hierarchy").

Regarding claim 10, Tatarinov discloses wherein at least one database table entry includes a type field which indicates a characteristic type of the node in the table entry from a predetermined set of types and wherein the set of types includes text node, element node, attribute node and/or processing instruction (page 207 section 5.1 paragraph 2: "values is used for text values of text nodes").

Regarding claim 11, Tatarinov discloses wherein the database table includes YPath and ZPath indexes pointing to predetermined respective entries in respective node and ZPath database tables (Applicants disclose on the specification page 5, lines 11 – 13. "The NodePath refers to a unique element node in XML document. The NodePath can be split into two parts A/B/C/D and m/m/o/p, referred to as the YPath and ZPath respectively". Therefore, Examiner interprets "XPath expressions" disclosed on page 208 and Table 2 of Tatarinov as YPath and Zpath).

Regarding claim 12, Tatarinov discloses a relational database comprising a table having an node field for storing an node of a hierarchical document (page 206 section 4, paragraph 1: "In order to store and query shredded XML documents using a relational database system, we need some mechanism to capture document order in the relational data model. This is accomplished by encoding each node's position in an XML document as a data value", and an identifier field for storing an identifier associated with each respective node stored in the node field (page 206 section 3.3: "the nodes in an input XML document are assumed to have unique identifiers (IDs)").

Regarding claim 14, Tatarinov discloses wherein at least one database table entry includes a value field for recording a value of an node in the respective table entry (page 206, section 4.1 paragraph 1 : "each node is assigned a number that represents the node's absolute position in the document").

Regarding claim 16, Tatarinov discloses wherein the database table includes node and ZPath indexes referencing respective entries in respective node and ZPath database tables in the database (page 207 section 5.1, paragraph 2: "Each Edge tuple represents a node in the XML document tree. The id column corresponds to the node's ID and also serves as the primary key of the relation. The parent\_id column provides a "link" (i.e., foreign key) to the node's parent. The name column is used to store the tag name of element nodes, the value column is used for text values of text nodes").



Regarding claim 17, Tatarinov discloses wherein the YPath table includes fields for storing XPath element names and document Ids (page 207 section 5.1 paragraph 2: The parent\_id column . . . . tags name of element codes”.

Regarding claim 18, Tatarinov discloses wherein the ZPath table includes fields for storing XPath integer indexes and document Ids (page 205 section 3.2.1, paragraph 5: Also if predicate . . . the position of node selected”).

Regarding claims 19 and 22, Tatarinov discloses a method of writing a hierarchical document comprising:-

- (a) reading data (page 205 section 3.2.1: examiner interprets “navigating” as “reading data”) from a relational database which is representative of nodes of a hierarchical document (page 206 section 4, paragraph 1: ‘XML documents using a relational database’),
- (b) generating predetermined software events for respective read nodes (fig. 3: “XPath-toSQLtranslation algorithm” is interpreted as the “predetermined software events”), and
- (c) passing the software events to a content handler which is arranged to translate each software event into a written node of the hierarchical document (page 208 section 6.1, paragraph 2: “As shown, the algorithm in Figure 3 initially generates the SQL fragment to select the root elements of the stored XML documents (lines 4-6). Then, using the root elements as the initial context nodes, the algorithm generates the SQL fragments for each “step” of the XPath query being translated in order to produce new context

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nodes (line 8). The context nodes produced by the last step constitute the query result (lines 10-11)").

Regarding claim 21, Tatarinov discloses a computer readable medium carrying a program which when executed on a computer causes storing of a hierarchical document in a relational database by:

(a) receiving software events (page 207 section 7.2: "The rest of the queries were chosen to test key aspects of order-based functionality in XPath and XQuery. The test queries were translated to SQL using the algorithm described in Section 6")

representing respective parsed nodes of a hierarchical document (page 214, section 7.8, paragraph 1: XML document has to be parsed"),

(b) associating a unique identifier with respective parsed nodes of the document (page 206, section 3.3: "the node in an XML document are assumed to have unique identifiers (IDs)") which includes information about the hierarchical position of the node in the document (page 206 section 4.1: "each node is assigned a number that represents the node's absolute position in the document"),

(c) storing the node with its identifier in a table of a relational database (page 207 section 5.1: "the Edge table is used to store an entire document. . . . Each Edge tuple represents a node in the XML document tree").

**Conclusion**


10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred I. Ehichioya whose telephone number is 571-272-4034. The examiner can normally be reached on M - F 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Breene can be reached on 571-272-4107. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Fred I. Ehichioya  
Patent Examiner  
Art Unit 2162

May 17, 2006

  
SHAHID ALAM  
PRIMARY EXAMINER